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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,093	04/06/2001	Tetsuji Mitsumoto	4296-135 US	5491

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EXAMINER

MANOHARAN, VIRGINIA

ART UNIT PAPER NUMBER

1764

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/828,093

Applicant(s)

MITSUMOTO ET AL.

Examiner

Virginia Manoharan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-17 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

The replacement drawings (Figs. 5A-5C) were received on May 20, 2005. These drawings have been disapproved because reference numerals (57) and (55) both appear to be pointing to the same device. Likewise numerals (50) and ((52) are pointing to the same device. Also, the claimed liquid openings are not shown in the drawing(s)..

Claims 1, 2, 4-17 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claimed ".an opening area ratio of said splash collision plate in the range of 30% to 70% in claim 9 is nowhere in the specification; or at least appears to be inconsistent with that recited in the specification. Page 14, lines 22-30, alluded to by applicants as providing support for the above limitation however, recites the opening area ratio of this tray is properly in the range of 30-70%.." (lines 23-24).;and further recites that the total opening area of the plate and the segmental opening is properly in the range of 30-70% (lines 29-32). The former recitation refers to a tray and the latter refers to an opening area of the plate and a segmental opening which appear to be inconsistent with the above claimed ratio.

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Claims 1-2, 4-8, 10-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al (6,214,174) with or without Nutter (4,304,738). Matsumoto et al discloses a "...method for the production of an easily polymerizable substance, comprising performing purification by the use of a column provided in at least part thereof with (a) a tray directly fixed with a bolt and a nut to a support ring fitted to the inner wall of the column and/or (b) a tray fixed to the support ring with a vertical clamp.." as broadly claimed in claim 1. See Figures 2-5; column 2, lines 65-66 and column 4, lines 1-27. Obviously, the tray of Matsumoto is a dual flow tray as further claimed in claim 2, since Matsumoto's trays are perforated trays operating in a countercurrent vapor-liquid flow regime without downcomers. See Nutter's definition of a dual flow tray at column 6, lines 27-38. Furthermore, Matsumoto discloses at column 4, lines 28-42 the claimed features in claims 3-4, 15 and 18. That the column is a distillation column with a plurality of trays as claimed in claim 5 is suggested at column 3, lines 62-65. The 50 stages of Matsumoto is deemed to correspond to the claimed 3 to 100 trays in claims 6 and 16. (See Example 1, column 7). Moreover, that said easily polymerizable substance is at least one member selected from the group consisting of an unsaturated carboxylic acid, an ester thereof, a vinyl-group containing compound as claimed in claims 7-8, and noting further claim 17 are suggested or disclosed at column 2, lines 62-67 through column 3, lines 1-15 of the Matsumoto's reference.

Claim 9 is rejected under 35 U.S.C. 103(a) as obvious over Matsumoto et al (6,214,174) in view of Binkley et al (5,164,125).

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Matsumoto et al '174 is discussed supra. Binkley discloses a splash deflector device which is deemed corresponding to the claimed splash collision plate in claim 9 See the abstract. To provide a splash deflector or collision plate in the apparatus of Matsumoto would have been obvious to one of ordinary skill in the art in order to block flow of undesired liquid reducing liquid maldistribution and deflecting any splashed liquid in the system of Matsumoto. See e.g., col. 5, lines 55-60 of the Binkley's reference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Manoharan whose telephone number is (571) 272-1450.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
VIRGINIA MANOHARAN  
PRIMARY EXAMINER

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8/3/04